

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
4 August 2005 (04.08.2005)

PCT

(10) International Publication Number  
**WO 2005/069748 A3**

(51) International Patent Classification<sup>7</sup>: **H01J 37/26**,  
B81B 3/00, G01L 1/00, 1/14

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(21) International Application Number:  
PCT/SE2005/000098

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(22) International Filing Date: 26 January 2005 (26.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
0400177-2 26 January 2004 (26.01.2004) SE

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(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ,  
TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA,  
ZM, ZW.

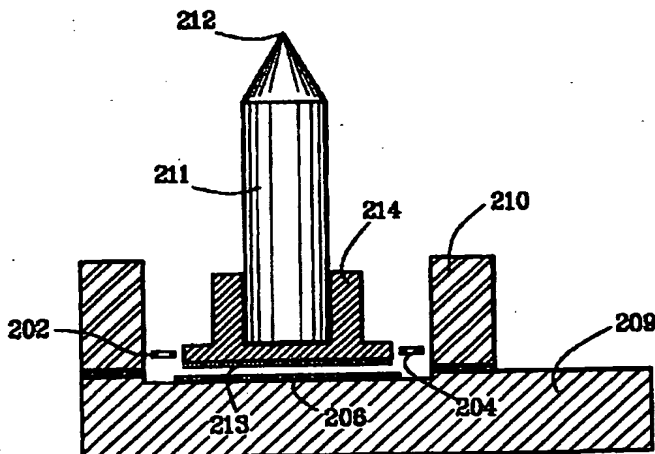
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(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,  
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,  
FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

[Continued on next page]

(54) Title: MEMS NANOINDENTER



(57) Abstract: A force sensor (200) and nanoindentation system (300) using such force sensor (200), wherein the force sensor (200) comprise a movable membrane (207) attached to a fixed bulk structure (210) with springs (201, 202, 203, 204) formed between the membrane (207) and bulk structure (210); the springs (201, 202, 203, 204) may be provided two on each side of a rectangular membrane (207) and each in the form of a U-shape with displacing elements (801) formed perpendicular to each open end of each U-shaped spring (800). The force sensor further comprises electrodes (206) for detecting capacitive changes between the movable membrane (207) and the electrodes (206) in order to measure a movement in relation to an applied force. The membrane (207) further comprises a probe holding structure (214) for providing a solution for interchangeable probes (211).

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SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the International search report:  
22 September 2005

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*